HYDRODYNAMIC MICROMANIPULATION OF INDIVIDUAL CELLS TO PATTERNED ATTACHMENT SITES

ABSTRACT OF THE DISCLOSURE

[000121] A system for manipulation of a cell (**100**) includes a platform (**33**) which defines a surface (**50**) having a site (**60**) at which the cell has a higher probability of attachment in a period of time than on an adjacent area (**52**) of the surface. First and second syringes (**10, 12**) are selectively actuated to deliver a liquid to first and second tubes **26, 28**, respectively. Outlets (**29, 29'**) of the first and second tubes are positioned so as to deliver the liquid to a liquid medium on the platform, thereby creating generally orthogonal fluid flows through the liquid to/from a region of interest (**35**). Cells located in the liquid medium at the region of interest move at a speed which is much lower than that of the liquid at the tube outlets and along the tube axis, allowing the cell to be manipulated to the site by manual or automated actuation of the syringes. Once on the site, the cell attaches, unwanted cells on the adjacent area can be washed away, allowing electrochemical or other measurements to be performed on an accurately positioned cell or group of cells.